

BACKGROUND INFORMATION

In order to understand the research methods utilized in this cultural resources planning study of the Route 13 relief route and its results, it is necessary to consider the environmental setting of the study area. Similarly, it is important to survey the general prehistory and history of Delaware's Coastal Plain.

Environmental Setting

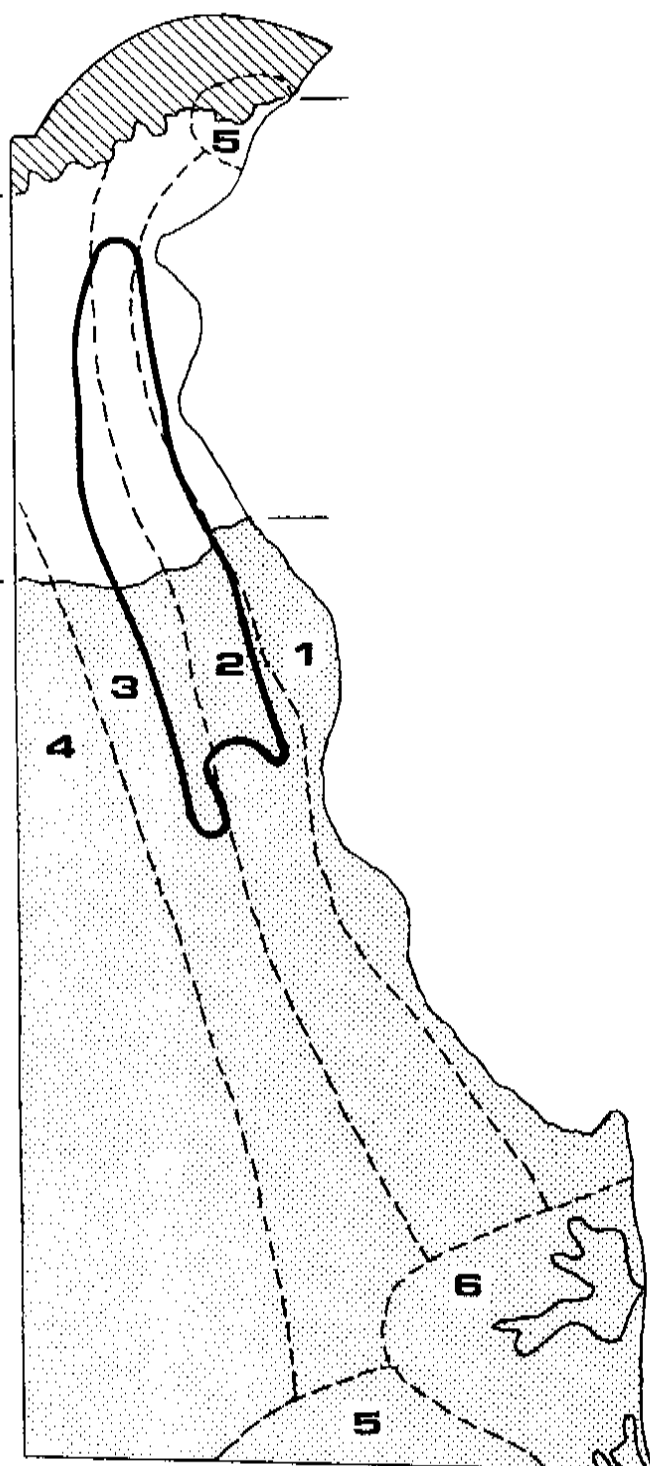
The study area for the Route 13 Relief Route Corridor is located in Delaware's Coastal Plain (Figure 1). For the study of the prehistoric and historic resources of the region, a number of varied environmental zones are recognized in the Coastal Plain (Figure 2). Each of these zones is described below and the descriptions are derived from the work of Custer (1983a, 1983b).

High Coastal Plain - Located between the Fall Line and the Smyrna River, the High Coastal Plain represents the southeastern extension of the coarse gravels of Pleistocene (Columbia) sediments in Delaware (Jordan 1964:40). A rolling topography is present and elevation differences range up to 16 meters (50 feet) from the headlands bordering high order streams and adjacent floodplain marshes. These differences are sufficient to cause differential distributions of plant and animal species (Braun 1967:246-247). Watercourses are deeply incised and are lined by a veneer of relatively recent sediments that is thin along the upper reaches of the drainages and thickens moving toward their mouths (Kraft et al. 1976:13). Most streams are not tidal and the freshwater/saltwater mix allows for a wide range of resources. Soils include a variety of well-drained and poorly drained settings that are distributed in a mosaic pattern across the region.

Low Coastal Plain - The Low Coastal Plain includes most of Kent County and most of the project area. It is underlain by the sands of the Columbia formation which have been extensively reworked to a very flat and relatively featureless landscape (Delaware Geological Survey 1976). Elevation differences range up to 10 meters

FIGURE 2

PHYSIOGRAPHIC ZONES



KEY:



- PIEDMONT AND FALL LINE



- UPPER COASTAL PLAIN



- LOWER COASTAL PLAIN



- PHYSIOGRAPHIC ZONE BOUNDARY LINES

1 - DELAWARE BAY SHORE

2 - MID-DRAINAGE

3 - INTERIOR

4 - MID-PENINSULAR DRAINAGE DIVIDE

5 - INTERIOR SWAMP

6 - ATLANTIC COAST/SMALL BAY

(30 feet) and these small differences are moderated by long and gradual slopes. River systems are tidal through most of their middle and lower reaches with extensive marshes found along the Delaware Bay. These riverine systems would combine a wide variety of environmental settings and resources and are especially attractive human habitation areas. Much of the area is well-drained; however, there are some extensive areas of poor drainage.

Although these two major physiographic zones provide one way of organizing a study of the Coastal Plain's cultural resources, they do obscure some additional significant environmental differences. These additional sources of environmental variability are generally distributed in broad belts parallel to the Delaware River and Bay shore. Each is described below and depicted in Figure 2.

Mid-Peninsular Drainage Divide - Representing the "spine" of the Del-Mar-Va Peninsula, this area is defined by the stretch of low, rolling topography that separates the headwaters of streams that drain into the Delaware River from streams that drain into the Chesapeake Bay. Elevation differences are slight and flowing surface water is restricted to the low order headwaters of the larger streams and rivers. Additional water sources of this zone include a number of swamps that have formed in areas of poorly drained soils surrounded by sand ridges. Bay/basin features, known locally as "whale-wallows", represent another water source in this area. Geomorphological evidence indicates that they were formed during the Pleistocene and many seem to have held water, at least seasonally, ever since (Rasmussen 1958:82). The combination of headwater drainages, swampy areas, and bay/basin features with interspersed well-drained areas creates a mosaic of edaphic settings. Only a small section of the project area, between Pine Tree Corners and Flemings Landing, falls within this zone.

Delaware Shore - Included in the Delaware Shore zone are the remnant terraces of the Delaware River as well as the various tidal marshes that fringe the Delaware

River and the Delaware Bay. These marshes are found throughout the area and often extend well up the drainages from the river and bay shore. Soils in the area are generally poorly drained; however, pockets of well-drained soils in the areas of higher elevation may be found. Only the eastern edges of the project area are included in this zone.

Mid-Drainage - The Mid-Drainage zone is located between the Delaware Shore and Mid-Peninsular Drainage Divide zones and includes the majority of the study area. The modern tidal limit along the drainages marks the center of this zone and the major drainages and their tributaries are fresh throughout the inland portion of the zone. Some tidal marshes and poorly drained floodplains are found along the major drainages. Well-drained soils are found on upper terraces of the drainages and on isolated headlands between the major drainages and their tributaries. The extensive combination of brackish and freshwater resources makes this zone one of the richest in Delaware for hunters and gatherers.

It should be noted that the locations of these zones have not remained constant since the end of the Pleistocene because some zones have been subjected to extensive landscape modification. The most important factor in this landscape modification is post-Pleistocene sea level rise. Kraft et al. (1976) note that sea level has been rising along the Atlantic Coast for the past 12,000 years and this sea level rise has transformed the Delaware River of 10,000 B.C. into the current drowned estuary. Many old land surfaces have become submerged and the configuration of the Delaware River and Bay have changed dramatically. In terms of the study area, these effects would be most prevalent in the eastern half of the Mid-Drainage zone and the River Shore zone.

Regional Prehistory*

The prehistoric archaeological record of the Delaware Coastal Plain can be divided into four large blocks of time: The Paleo-Indian Period (ca 12,000 B.C. - 6500 B.C.), the Archaic Period (6500 B.C. - 3000 B.C.), the Woodland I Period (3000 B.C. - A.C. 1000), and the Woodland II Period (A.D. 1000 - A.D. 1650). A fifth time period, the Contact Period may also be considered and spans from A.D. 1650 to A.D. 1750, the approximate date of the final Indian habitation of Delaware in anything resembling their pre-European Contact form. Each of these periods is described below.

Paleo-Indian Period (12,000 B.C. - 6500 B.C.) - The Paleo-Indian Period encompasses the time period of the final retreat of Pleistocene glacial conditions from Eastern North America and establishment of more modern Holocene environments. The distinctive feature of the Paleo-Indian Period is an adaptation to the cold, and alternately wet and dry, conditions at the end of the Pleistocene and the beginning of the Holocene. This adaptation was primarily based on hunting and gathering with hunting providing a large portion of the diet. Hunted animals may have included now-extinct megafauna and moose. A mosaic of deciduous, boreal, and grassland environments would have provided a large number of productive habitats for these game animals in central Delaware and watering areas would have been particularly good hunting settings.

Tool kits of the people who lived at this time were oriented toward the procurement and processing of hunted animal resources. A preference for high quality lithic materials is noted in the stone tool kits and careful resharpening and maintenance of tools is common. A mobile lifestyle moving among the game attractive environments is hypothesized with the social organizations being based upon single and multiple family bands. Throughout the 5500 year time span of the

*This summary of the regional prehistory is abstracted from Custer (1983a).

period, the basic adaptation remains relatively constant with some modifications being seen as Holocene environments appear at the end of the Paleo-Indian Period.

Numerous Paleo-Indian sites are noted for the Delaware Coastal Plain. Most of the sites are associated with poorly drained swampy areas and include the Hughes Paleo-Indian Complex near Felton. Although no clear-cut associations have yet been found, it is also hypothesized that bay/basin features may also be the loci of Paleo-Indian sites (Custer et al. 1983). Generally, the most likely locations for Paleo-Indian sites are not within the project area, except for the area of extensive bay/basin features between Pine Tree Corners and Flemings Landing.

Archaic Period (6500 B.C. - 3000 B.C.) - The Archaic Period is characterized by a series of adaptations to the newly emerged full Holocene environments. These environments differed from earlier ones and were dominated by mesic forests of oak and hemlock. A reduction in open grasslands in the face of warm and wet conditions caused the extinction of many of the grazing animals hunted during Paleo-Indian times; however, browsing species such as deer flourished. Sea level rise is also associated with the beginning of the Holocene in Delaware. The major effect of the sea level rise would have been to raise the local water table, which helped to create a number of large interior swamps. Adaptations changed from the hunting focus of the Paleo-Indian to a more generalized foraging pattern in which plant food resources played a more important role. Large swamp settings apparently supported large base camps, but none are known from the study area. A number of small procurement sites in favorable hunting and gathering locals are known from Delaware's Coastal Plain.

Tool kits were more generalized than earlier Paleo-Indian tool kits and showed a wider array of plant processing tools such as grinding stones, mortars, and pestles. A mobile lifestyle was probably common with a wide range of resources and settings utilized on a seasonal basis. A shifting band level organization which

saw the waxing and waning of group size in relation to resource availability is evident. Known sites include large base camps such as the Clyde Farm Site in northern Delaware and smaller processing sites located at a variety of locations and environmental settings.

Woodland I Period (3000 B.C. - A.D. 1000) - The Woodland I Period can be correlated with a dramatic change in local climates and environments that seem to be a part of events occurring throughout the Middle Atlantic region. A pronounced warm and dry period sets in and lasts from ca. 3000 B.C. to 1000 B.C. Mesic forests were replaced by xeric forests of oak and hickory and grasslands again became common. Some interior streams dried up; however, the overall effect of the environmental change is an alteration of the environment, not a degradation. Continued sea level rise and a reduction in its rate also made many areas of the Delaware River and Bay shore the sites of large brackish water marshes which are especially high in productivity. The major changes in environment and resource distributions caused a radical shift in adaptations for prehistoric groups. Important areas for settlements include the major river floodplains and estuarine swamp areas. Large base camps with fairly large numbers of people are evident in many parts of the study area such as the Barker's Landing, Coverdale, Hell Island, and Robbins Farm sites. These sites seem to support many more people than previous base camp sites and may have been occupied on a year-round basis. The overall tendency is toward a more sedentary lifestyle.

The tool kits show some minor variations as well as some major additions from previous Archaic tool kits. Plant processing tools become increasingly common and seem to indicate an intensive harvesting of wild plant foods that may have approached the efficiency of agriculture by the end of the Woodland I Period. Chipped stone tools changed little from the preceeding Archaic Period; however, broad-blade, knife-like processing tools become more prevalent. The addition of

stone, and then ceramic, containers is also seen. These items allowed the more efficient cooking of certain types of food and may also have functioned for storage of certain surplus plant foods. Storage pits are also known for the Delaware Coastal Plain during this period from the numerous sites.

Social organizations also seem to undergo radical changes during this period. With the onset of relatively sedentary lifestyles and intensified food production, which might have produced occasional surpluses, incipient ranked societies began to develop as indicated by the presence of 1) extensive trade and exchange in lithic materials for tools as well as non-utilitarian artifacts, 2) caching of special artifact forms and utilization of artifacts manufactured from exotic materials (such as the Kiunk Ditch site), and 3) cemeteries that contain elaborate burials which often include grave goods manufactured from exotic raw materials. The data from cemeteries of the Delmarva Adena Complex (ca. 500 B.C. to A.D. 0), such as the Frederica site and the St. Jones site (Thomas 1976), indicate that certain individuals had special status in these societies and the existence of a simple ranked social organization is hypothesized. Similar data from the Island Field site show that these organizations lasted up until A.D. 1000, although they may not have always been present throughout all of the Woodland I Period. In any event, by the end of the Woodland I Period a relatively sedentary lifestyle is evident in Delaware's Coastal Plain. It should also be noted that the greatest number of archaeological sites in the project area date to the Woodland I Period and the Mid-Drainage zone is the focus of most of the important sites of this period.

Woodland II Period (A.D. 1000 - A.D. 1650) - In many areas of the Middle Atlantic, the Woodland II Period is marked by the appearance of agricultural food production systems; however, in the Delaware Coastal Plain there are no clear indications of such a shift. Some of the settlements of the Woodland I Period, especially the

large base camps, were also occupied during the Woodland II Period and very few changes in basic lifestyles and overall artifact assemblages are evident. Intensive plant utilization and hunting remained the major subsistence activities up to European Contact. There is some evidence, nonetheless, of an increasing reliance on plant foods and coastal resources throughout the Woodland II Period in the study area. Social organization changes are evidenced by a collapse of the trade and exchange networks and the end of the appearance of elaborate cemeteries.

Contact Period (A.D. 1650 - A.D. 1750) - The Contact Period is an enigmatic period of the archaeological record of Delaware which begins with the arrival of the first substantial numbers of Europeans in Delaware. The time period is enigmatic because no Native American archaeological sites that clearly date to this period have yet been discovered in Delaware. A number of sites from the Contact Period are known in surrounding areas such as southeastern Pennsylvania, nonetheless. It seems clear that Native American groups of Delaware did not participate in much interaction with Europeans and were under the virtual domination of the Susquehannock Indians of southern Lancaster County, Pennsylvania. The Contact Period ends with the virtual extinction of Native American lifeways in the Middle Atlantic area except for a few remnant groups.

Regional History*

The earliest colonial settlement in Delaware was the Dutch settlement of Zwaanendael which was established as a whaling colony near present-day Lewes in 1629. The settlement was short-lived as the early colonists were massacred by local Indians in 1632. It was not until 1661 when a Mennonite colony was formed that a permanent settlement was established at Lewes. Further north, the Swedes

* This overview is abstracted from Munroe (1978), Hoffecker (1973, 1977), Weslager (1961, 1967), Lemon (1972), Hancock (1932).

established Fort Christina in 1638 at the confluence of the Brandywine and Christina Rivers in what is now part of Wilmington. The small colony grew and within a few years a fort, church and small farming community appeared and formed the nucleus for the first permanent European settlement in Delaware. This community contested the earlier Dutch settlements further north in the Delaware Valley.

Dutch colonial interests continued and in 1651 Fort Casimir was established near modern New Castle. Conflicts between the Dutch and the Swedes escalated to military conflict, as both groups infringed on the colonial interests of the other. The Dutch were ascendent and they appropriated the Swedish colonies. Fort Casimir was renamed Fort Trinity, and New Amstel, a farming and trading settlement, arose nearby. The Dutch claims included all land from the Christina River to Bombay Hook by the early 1660's, including a portion of the study area.

British hegemony of the region began in 1664 when Sir Robert Carr seized the Dutch colonies and, assumed possession for James, Duke of York and Albany. Anglicizing the new colony was a slow and gradual process. The transfer of authority from Dutch to British hands was peaceful with existing land ownership, trading privileges and political structure maintained by the new leadership. The Swedish, Finnish, and Dutch colonists remained and new immigrants of those nationalities, as well as English and Scotch-Irish, supplemented the growing population to form a multi-ethnic community.

In 1682, William Penn was granted proprietary rights over Pennsylvania and the Lower Three Counties which included the city of New Castle, the land within a 12-mile radius of the New Castle courthouse, and the land on the west bank of the Delaware Bay (including all of modern Delaware). Conflicts soon developed between the pacifist Quakers of Pennsylvania and the colonists of the Three Lower Counties, and these led to the establishment of separate governmental bodies and

relative autonomy for the southern colonists. However, economic ties continued to link Penn's factionalized colony. The Penn family's claims to interest in the colony were finally relinquished just prior to the American Revolution.

The early Dutch and Swedish pattern of settlement with closely spaced villages along the Delaware River was gradually replaced by the English colonial settlement pattern of scattered farmsteads along emerging transpeninsular roads. This pattern of scattered settlement was encouraged by economic factors. For example, Philadelphia mercantile interests required increasing numbers of marketable foodstuffs for local and export markets and land speculators parceled huge tracts of productive farmland obtained from Penn. Philadelphia's emerging economic influence during the 18th century caused a shift in agricultural activities in Delaware from subsistence to market-oriented crops.

The waterways were important to transportation and commerce as early roads were limited in number and of poor condition. The few existing roads led to landings on rivers and the Delaware Bay where produce and goods were shipped by cheaper, and more efficient, water transport. Some of these locations are included in the study area. The Delaware River - Delaware Bay served as a major focus of water transportation because the majority of Delaware's streams flow eastward to these bodies. For this reason the large port city of Philadelphia, and to a lesser extent Wilmington and New Castle, exerted major commercial influence on the Delaware counties throughout the 18th century and later. Wilmington, New Castle, and Lewes were also ports for ocean-going vessels involved in export trade. Overland transport was limited to a few major roads, such as the 18th century post road connecting Philadelphia-Wilmington-New Castle-Odessa-Middletown-Dover-Lewes with a western branch at Milford linking it to the Chesapeake Bay. Small secondary roads and paths interconnected the numerous villages and hamlets and are common within the study area.

By the middle of the 18th century population increases and commercial expansion stimulated the growth of towns and the development of transportation and industry. During the 1730's successful attempts were made to harness water-power on the Brandywine and Christina Rivers resulting in the establishment of Wilmington as the foremost milling and shipping center in Delaware. The availability of wheat from the central Mid-Atlantic region, easy and economical transportation, and the proximity of the Philadelphia and New York markets facilitated the commercial rise of the Brandywine mills. During the later part of the 18th century Wilmington's economy focused on shipbuilding, coopering, milling, and import-export trade.

The rise of commerce and industry in Wilmington produced significant effects on the rural areas of New Castle and Kent counties. The technologies utilized in the Brandywine Valley spread to these areas resulting in a extensive network of mills throughout the colony. Millworks in the agrarian areas were frequently multi-functional with water-powered grist, saw and (woolen cloth) fulling operations being performed at different seasons at the same location. The mills primarily produced goods for local markets. At this time, the agrarian Delmarva Peninsula was considered an area of portage between the Chesapeake Bay markets (Annapolis and Baltimore) and the Delaware River and Bay markets (Philadelphia and New York).

The early decades of the 19th century saw the beginning of an agricultural revolution throughout Delaware, most extensively in New Castle county. The first agricultural society in the United States was formed in New Castle county in 1804 with a strong focus on scientific agricultural practices. A number of factors worked in conjunction to establish New Castle county, and Delaware as a whole, as an important agricultural producer. The discovery of marl, a natural fertilizer, during the construction of the Chesapeake and Delaware Canal in the 1820's

enhanced the productivity of Delaware agriculture while the opening of the canal encouraged the production of market-oriented crops because produce could be quickly and cheaply transported to markets.

The opening of the Philadelphia, Wilmington and Baltimore Railroad in 1839 provided transportation of northern Delaware produce to the growing eastern markets. The extensive production of market-bound crops developed later in Kent and Sussex counties due to a lack of interior transportation facilities, although produce did move by water from seaport towns. When the Delaware Line extended rail service to Dover and later Seaford in the 1850's, a vast agricultural hinterland was opened and agricultural production for markets increased significantly.

Prior to 1832 Delaware's agricultural products were primarily grains, with fruit and vegetable crops of lesser importance. During the period 1832-1870 Delaware became the center for peach production in the eastern United States. Rich soil, favorable climate and rainfall, excellent transportation facilities, and strategic location near large markets made peach production a lucrative enterprise. Delaware City with its canal location led Delaware and New Castle county in production until the peach blight of the 1850's. The peach industry was hindered in Kent and Sussex counties until the 1850's due to transportation limitations. Early attempts there failed because producers could not move fruit to market economically. Rail service into the area and the absence of the peach blight in the southern counties made the peach industry economical in the 1850's.

By the end of the "peach boom", massive harvests were being shipped by rail and steamship lines to New York where much was readied for resale to the northern states. The peach industry proved profitable for a large number of peach growers, as well as a variety of support industries. Basket factories, canneries, and peach tree nurseries all aided in and reaped the financial rewards of the peach industry. The railroad and steamship lines integral to peach distribution, depended

on peach shipment for a large portion of their annual revenue. The construction of "peach houses" of the Italianate architectural style accompanied the influx of money which resulted from the growth of the peach industry and peach houses are common in the study area.

Through the 19th century, and into the 20th century, Delaware's agricultural production continued to focus on the perishable products with a decrease in staples. There has been marked increase in milk and poultry production while the levels of fruit and vegetable production were maintained. Cash crops such as tobacco, have been of importance on a small scale in Kent and Sussex counties.

Throughout Delaware's agricultural history farm labor has been a valued commodity. In the colonial period blacks in slavery and white indentured servants were the primary farm laborers. By the mid-18th century white indentured servants were as numerous as black slaves. Slightly less than one-half of the blacks in the state in 1790 were free; however, by 1810, less than one-quarter of blacks were slaves according to federal censuses. Therefore, in the 18th century, free black laborers played an increasing role in farm production. Abolitionist attitudes were strong in Delaware and legislation enacted by Quaker and Methodist leaders restricted the increase of slaveholding, especially in New Castle and Kent counties by prohibiting the importation and exportation of slaves. Agricultural factors, as well, reduced the profitability of slaveholding and thus a combination of ethical and economic factors were responsible for the increase in the free black population in the state prior to Emancipation and the Civil War.

The patterning and density of settlement in Delaware, and the study area specifically, have been strongly influenced by several factors throughout its history. These are: 1) an agrarian economy; 2) the commodity demands of large markets, first Europe and the West Indies, and later domestic commercial-industrial centers; and 3) transportation facilities. The advent of automobile

transportation in the 20th century brought about significant improvements in the state road system and opened large tracts of land to productive agriculture. The Dupont Highway constructed in the 1920's linked the northern and southern sections of the state and shifted the agrarian focus of the southern counties permanently toward non-local markets.

EXISTING DATA BASE

The purpose of this section is to present the existing data base on archaeological site locations, both prehistoric and historic, and standing structures. The cultural context of these sites will also be evaluated in light of the general prehistory and history of the region.

Prehistoric Archaeological Sites

The existing data base on prehistoric archaeological site locations within the proposed project area is the file of all archaeological sites recorded in Delaware that is maintained by the Bureau of Archaeology and Historic Preservation, Delaware Division of Historical and Cultural Affairs. These site files were searched as a part of this project and all known site locations were recorded on United States Geological Survey (USGS) 7.5' quadrangle maps. Relevant information was also recorded from the individual site forms. Appendix I lists the known archaeological sites by USGS map, and Attachment I to this report shows the locations of these sites. The information listed in Appendix I includes:

- 1) Archaeological survey site designation.
- 2) Delaware Cultural Resource Survey (CRS) Number.
- 3) Functional site type. The site types recognized are based on descriptive types developed by Gardner (1982) and applied to Delaware Coastal Plain sites by Custer (1983a, 1983b). The basic types include procurement sites (limited function sites occupied only for a short time for specialized resource procurement and processing activities), micro-band base camps (habitation sites for small social units), and macro-